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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/072,462	02/05/2002	Densen Cao	5061.15 P	9466

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EXAMINER

LEWIS, RALPH A

ART UNIT	PAPER NUMBER
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3732

DATE MAILED: 11/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

as

<b>Office Action Summary</b>	<b>Application No.</b> 10/072,462	<b>Applicant(s)</b> CAO, DENSEN	
	<b>Examiner</b> Ralph A. Lewis	<b>Art Unit</b> 3732	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### Rejections based on Prior Art

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claim 18 is rejected under 35 U.S.C. 102(a) as being anticipated by Mills (WO 99/16136).

Mills discloses a dental curing light having a secondary heat sink 45 with longitudinal axis; a primary heat sink 48 attached to secondary heat sink 45 and semiconductor chips (LEDs) 43 mounted to the primary heat sink.

In regard to the “at least some light being emitted from said chip in a direction that is at an angular orientation with said secondary heat sink” limitation, the examiner notes that as illustrated by applicant in his own Figures (e.g. 5a, 5b, 7a and 8a) that LED's inherently have “at least some light” that is emitted at an angle. The examiner is of the position that this incidental light is also inherent in the Mills LEDs 43.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Bianchetti et al (EP 1 090608) in view of Logan et al (US 6,692,251).

Bianchetti et al in Figure 1 disclose a dental photo handpiece having an elongated housing 2, a light control actuator 19 at the top of the housing and semiconductor light emitting diodes 7, 31 directing light from the handpiece in an angular direction from the longitudinal axis of the elongated housing. Bianchetti et al fail to disclose the claimed secondary heat sink or the primary heat sink. Logan et al for a similar dental curing handpiece disclose that it is desirable to provide for an elongated secondary heat sink 39 and a primary heat sink 36 for conducting heat from the light emitting diodes 30 thereby improving the performance of the device. To have provided the Bianchetti et al dental curing handpiece with primary and secondary heat sinks as those disclosed Logan et al in order to improve heat dissipation and efficiency of the device would have been obvious to one of ordinary skill in the art in view of the Logan et al teaching.

In regard to the "at least some of the light emitted [by said chip] travels at an angular orientation . . . with respect to said housing longitudinal axis" limitation of claim

4, the light being emitted from the Bianchetti et al LED chips 7, 31 is clearly at an angle with respect to the axis of the elongated housing 2. The same orientation is also present when the Bianchetti et al device is modified to include an elongated heat sink as taught by Logan et al.

In regard to the “at least some light being emitted from said chip that is at an angular orientation with said secondary heat sink axis” limitation of claim 11, it is noted that the chips 30 are generally in alignment with the axis of the secondary heat sink 39 in Logan et al. However, it is noted as illustrated by applicant in his own Figures (e.g. 5a, 5b, 7a and 8a) that LED’s inherently have “at least some light” that is emitted from the chip at an angle to the chip. Logan et al also observes this and provides for a reflecting surface 42 to reflect this angled incidental light forward. The examiner is of the position that this incidental light emitted from the chips meets the “at least some light being emitted from said chip that is at an angular orientation with said secondary heat sink axis” limitation.

#### **Allowable Subject Matter**

Claims 1-3 are allowed. In addition to setting forth more distinct structure, it is noted that claims 1-3 have at least several distinctions from claims 4, 11 and 18 with regard to the “angled light” limitation. More particularly, claims 1-3 call for the light emitted from the “LED chip module” which includes a “well” to be emitted at an angle, not simply from a “chip.” The “chip module” with “well” prevents the interpretation of the claim that includes the incidental light that is emitted from the sides of the “chip.”

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Additionally, it is noted that the limitation "light emitted by said LED chip module is emitted at an angle" is interpreted as the light that is being directly emitted from the chip module. The limitation is interpreted to preclude light that was originally emitted by the chip module and then subsequently reflected off of a tooth surface at an angle or light emitted from the chip module that is subsequently conveyed through a light conducting/reflecting device at an angular orientation.


**Action Made Final**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication should be directed to **Ralph Lewis** at telephone number **(571) 272-4712**. Fax (703) 872-9306. The examiner works a compressed work schedule and is unavailable every other Friday. The examiner's supervisor, Kevin Shaver, can be reached at (571) 272-4720.

R.Lewis  
October 28, 2004



Ralph A. Lewis  
Primary Examiner  
Au 3732